FLY SYNTHESIS
TEXAN TOP CLASS 580 ISR

PILOT OPERATING HANDBOOK

(For Rotax 912 ULS versions)

03	25/02/11	Converted speed in mph	C. Cosatto	C.Cosatto	C.Cosatto
02	25/01/11	Added checks propeller	C. Cosatto	C.Cosatto	C.Cosatto
01	20/12/10	Propeller auto pitch contr.	C. Cosatto	C.Cosatto	C.Cosatto
00	18/11/10	New manual issue	C. Cosatto	C.Cosatto	C.Cosatto
Num.	**Date**	**Description**	**Issued**	**Verified**	**Approved**
REVISION					

FLYSYNTHESIS

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IDENTIFICATION:

Manufacturer	FLY SYNTHESIS SRL
Address	Provincial Rd 78 Km 12.150 Mortegliano 33050 (UD) ITALY
Model:	FLY SYNTHESIS TEXAN
Version:	TEXAN 580 ISR
Airframe Serial No:	
Engine Model:	
Engine Serial No:	
Registration:	
Date:	
Signature:	
Stamp:	

NOTE

This manual may be revised in the future and pages/or sections re-issued in part or whole. Revisions will also be available on the Fly Synthesis website www.flysynthesis.com. Any revisions and/or sections should be printed and replaced in the manual at the earliest possible time for flight safety.
The revisions added to the manual should be logged and recorded in the table under log of ammendments of this manual, by the owner/user.

DEFINITIONS

Definitions used in this handbook such as WARNING, CAUTION and NOTE are employed in the following context.

WARNING
Procedures or instructions that if not followed correctly may result in injury or death

CAUTION
Procedures or instructions that if not followed correctly may result in damage to the aircraft or its parts

NOTE: Procedures or instructions that affect safety of flight are highlighted

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LOG OF REVISIONS

Revision No.	Revision	Date	Signature
01	Propeller auto pitch control system	20/12/10	Cosatto C.
02	Added checks and emergencies related to propeller pitch variation system	25/01/11	Cosatto C.
03	Converted speeds from knots to mph	25/02/11	Cosatto C.

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LOG OF EFFECTIVE PAGES

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SECTION 1

General information

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1.1 INTRODUCTION

This Operating Handbook contains the necessary information for a sure and efficient employment of the aircraft **FLY SYNTHESIS TEXAN TOP CLASS ROTAX 912 ULS 100 HP**. The POH has been prepared to comply with the requirements of **BCAR Section S,** CS-VLA and where relevant the ASTM standard.

The Pilot Operating Handbook is **valid only for the particular aircraft** identified on page 2, the identification page.

Read this manual before your first flight!

1.2 WARNINGS, SUGGESTIONS AND NOTES

The observance of this manual is **compulsory** for the aircraft's use.
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1.3 DESCRIPTIVE AIRCRAFT DATA

TYPE OF AIRCRAFT

Texan Top Class is a light sport aircraft with airframe; wings and control surfaces made of laminate and honeycomb sandwich composite materials. The rectangular shape low wing utilizes a laminar flow airfoil section. The ailerons are differential whilst the flaps are electrically operated plain type, the vertical tail control surface is composed by a fixed fin and by a mobile rudder, and the horizontal tail control surface is completely mobile, hinged in the central part with integrated trim. The tricycle type landing gear is fixed, with dampered nose wheel, with the main legs made in spring steel construction.

The Texan Top Class aircraft is approved for Day VFR only. Flight into bad weather with IFR conditions by VFR pilots and aircraft is extremely dangerous. As the owner and operator of an aircraft you are responsible for the safety of your passenger and yourself.

DIMENSIONS

General

Wing span:	8.600 m
Length:	6.990 m
Height:	2.400 m

Wing

Surface:	11.80 m^2
Wing chord:	1.399 m
Wing load:	49.2 kg/m^2

Flap

Surface:	0.570 m^2
Span:	1.700 m
Chord:	0.340 m
Travel:	0° - 45°

Aileron

Surface:	0.570 m^2
Span:	1.700 m
Chord:	0.340 m
Travel:	down 17° / up 22°

Stabilator

Surface:	1.950 m^2
Span:	3.000 m
Chord:	0.650 m
Travel:	down 11° / up 16°

Vertical fin (with rudder)

Surface:	1.150 m^2
Height:	1.350 m
Mean chord:	0.850 m

Rudder

Surface:	0.600 m^2
Height:	1.350 m
Mean chord:	0.440 m
Travel:	+/-18°

WEIGHTS

	Rotax 912 ULS
Empty weight	330 kg
Maximum allowed weight in baggage compartment	16 kg
Maximum Take Off Weight	580 kg
Minimum single pilot weight	70 kg
Maximum pilot and passenger weight	180 kg

LANDING GEAR

Type:	Tricycle type landing gear with dampened nose wheel	
Main gear track:	2.130 m	
Wheelbase:	1.585 m	
Tire:	Main:	4.00x6"
	Nose wheel:	4.00x4"
Tire pressure:	Main:	2.2 - 2.4 bar
	Nose wheel:	1.8 bar
Brakes:	Main wheels hydraulic disc.	

FUEL SYSTEM

Type:	Two lines with mechanical and auxiliary electric fuel pump Fuel plan draining system and fuel back system in the right tank
Tanks:	Two integrated tanks with 50 liters of capacity for each tank Televel and fuel reservoir sensor for each tank Fuel tank caps and a vent line coming to below the lower surface of the wing.
Non-usable fuel	2 liter for each tank
Fuel filter:	Gascolator on firewall, filtered electric fuel pump

Fuel specification

Rotax 912ULS	Premium Automotive Unleaded fuel min 95Ron.

For complete fuel specifications see engine manufacturer manual.

ELETRICAL SYSTEM

Type:	12 V CC electric wiring with starting battery Circuit breakers protected wiring Provision for gyroscopic instruments, autopilot, radio and gps AvMap EKP IV.

POWERPLANT

Engine:	**Rotax 912 ULS**
Type:	4 stroke, 4 cylinder horizontally opposed, spark ignition engine, liquid cooled cylinder heads, ram air cooled cylinders, two constant depression carburetors, mechanical fuel pump, air box, friction clutch geared reduction drive, radiator cooled oil, warm air at carburetor system.
Ignition:	increased electric ignition system HD
Battery:	Sealed Lead Acid Battery 12 Volts. (Applicable to both engines)
Standard propellers:	DUC composite three blades propeller, diameter 1750 mm, ground variable pitch. GT-2 wood two blades propeller, diameter 1730 mm, fixed pitch 1550 mm. Alisport Idrovario two blades variable pitch propeller, diameter 1760 mm, automatic in- flight variable pitch with Custom Intelligent Propeller control box, manual operations have been removed.

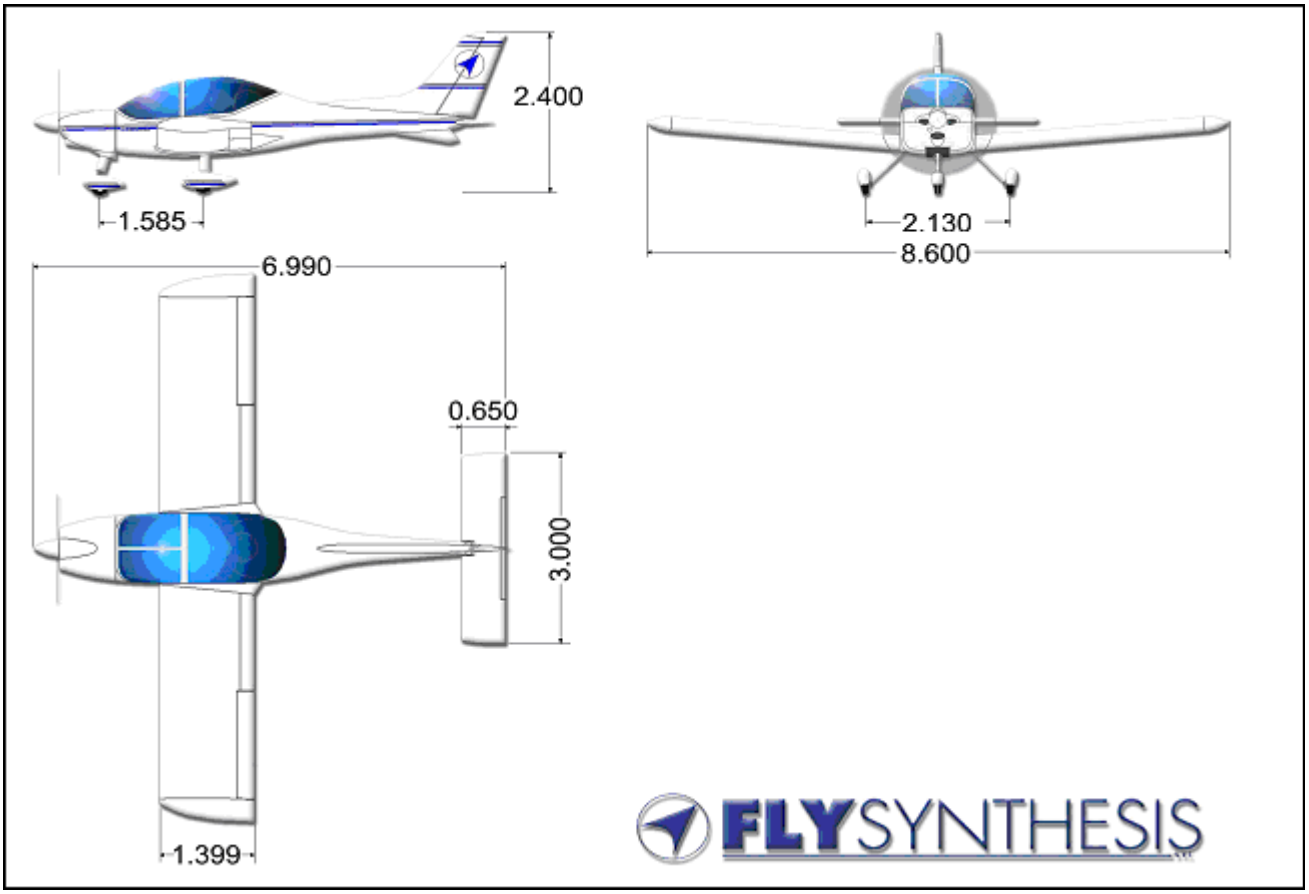
INSTRUMENTS

Standard instruments: Airspeed indicator, altimeter, vertical speed indicator, magnetic compass, slip indicator, flap angle indicator, two fuel level tank indicators with two low fuel level amber warning lamps, CHT, EGT, RPM, oil temperature indicator, oil pressure indicator, fuel pressure indicator, engine run time indicator, 12 Volt aux socket.

OTHER STANDARD EQUIPMENT

Main wheels and nose wheel fairings, main legs and nose leg aerodynamic fairing, depth adjustable seats, four points safety belts, electric flap system (travel: 0° - 45°), manual trim regulation system, fully upholstered cabin interior, canopy lock system with key, hooks for ground anchorage, landing lights.

1.4 AIRCRAFT THREE VIEWS



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2.1 INTRODUCTION

This section contains the operational limitations and instruments markings used for this aircraft, the engine, and the standard equipment. The limitations of speed have been calculated following the CS-VLA rules. The structure has been tested following the same rules.

2.2 AIRSPEED LIMITATIONS

	Speed	**Rotax 912 ULS IAS**	**Notes**
Vne	Never Exceed speed	250 km/h 155 mph	Never exceed this speed in every condition or configuration
Vmo	Maximum Structural Cruising Speed	200 km/h 124 mph	Never exceed this speed in turbulent air condition
Va	Maneuvering speed	145 km/h 78 KTS	Do not use full stick and full rudder deflections above this speed
Vfe	Maximum speed with full flaps	120 km/h 75 mph	Do not exceed this speed with flap extended
Vs	Stall speed without flap	74 km/h 46 mph	Do not descend this speed without flap to avoid undesired stall conditions
Vs1	Stall speed in take off position (15°)	70 km/h 44 mph	Do not descend this speed with flap in take off position to avoid undesired stall conditions
Vs0	Stall speed in landing position - full flap (45°)	65 km/h 40 mph	Do not descend this speed with flap in landing position to avoid undesired stall conditions

2.3 AIRSPEED MARKING

Marking	**Speed range (IAS)**	**Definition**
White arc	[Vs0 - Vfe] 40 - 75 KTS	Speed range where flap may be extended
Green arc	[Vs - Vmo] 40 - 121 KTS	Speed range of normal operation
Yellow arc	[Vmo- Vne] 124 - 155 KTS	Maneuver the aircraft with great caution
Red line	[[Vne] 155 KTS	Maximum speed allowed

2.4 POWERPLANT AND PROPELLER LIMITATIONS

Refer always to Rotax operator manual

Engine manufacturer:	**Rotax**
Engine model:	**912 ULS**
Maximum take off power:	**73.5 kW**
Maximum continuous power:	**69 kW**
Maximum take-off RPM:	**5800 rpm**
Maximum continuous RPM:	**5500 rpm**
Minimum cylinder head temperature:	**135°C**
Maximum oil temperature:	**130°C**
Minimum oil pressure:	**0.8 bar**
Maximum oil pressure:	**7 bar**
Minimum fuel pressure:	**0.15 bar**
Maximum fuel pressure:	**0.4 bar**
Usable type of fuel:	**minimum 95 RON**
Usable type of oil:	**See engine manual specifications**

Propeller manufacturer:	**DUC Hélices**	**GT Propellers**	**Alisport Idrovario**
Propeller model:	**Carbon 3-blades Ground variable pitch**	**Wood 2-blades Fixed pitch**	**Composite 2- blade Auto-Variable pitch***
Maximum diameter:	**1750 mm**	**1730 mm**	**1760 mm**

***** manual operations have been removed.

2.5 POWERPLANT INSTRUMENTS MARKING

Rotax 912 ULS engine version

Instrument	Min Red line limit	Min Yellow arc Caution	Green arc-normal operations	Max Yellow arc Caution	Max Red line Limit
RPM indicator	nd	nd	1.400 - 5.500 rpm	5.500 - 5.800 rpm	5.800 rpm
Fuel pressure gauge	0.15 bar	nd	0.15 - 0.4 bar	nd	0.4 bar
Oil pressare gauge	0.8 bar	0.8 - 2 rpm	2 - 5 bar	5 - 7 rpm	7 bar
Oil temp. gauge	50°C	50° - 90°C	90° - 100°C	110° - 130°C	130°C
CHT	50°C	nd	50° - 100 °C	110° - 135°C	135°C

2.6 WEIGHT LIMITATIONS

	Rotax 912 ULS
Empty weight	330 Kg
Maximum fuel weight	77 Kg
Maximum allowed weight in baggage compartment	16 Kg
Maximum Take Off Weight	580 Kg

2.7 CENTER OF GRAVITY LIMITATIONS

With the purpose to achieving the best performances of flight and operations in complete safety, according to the procedures described in this manual, the aircraft must have employed respecting all the schemes of load and balancing pointed out in the following pages.
Pilot must consider the limit of weighing and all correlated parameters.
Before the delivery of the airplane, center gravity position and weight of the airplane are verified.

NOTE: Empty weight & Center gravity position must be updated after a new weighing, in the following case:
- Substitution and/or modify of one or plus accessories and equipment;
- After painting or reparations of fuselage.

Weight and Center Gravity position must be recorded after every change to the weighing report inside this manual only by authorized personnel. The weighing report must be recalculated and reissued if the empty weight changes by more than 0.5% of MTOW or 10 kg whichever is greater of the empty weight.

The location of the CG can be defined by reference to the % MAC.
Maximum anterior limit: 27% M.A.C. correspondent to 377 mms
Maximum back limit: 36% M.A.C. correspondent to 504 mms

For methodology and conditions for weight and balance procedure, see section 6.

2.8 MANOEUVRE LIMITATIONS

All aerobatics maneuvers are prohibited.
The normal flight operations permitted are as follows:

- Every connected maneuver to the normal flight operation,
- Stalls, with exclusion of the accelerated stall (superior to 1 g)
- Low speed figure eight, chandelle, turns below 60°

The use of the aircraft has to conform with the Rules of the State within it flies

WARNING: Flight in known icing conditions, snow and heavy rain is prohibited.
The pilot is responsible for determining the airworthiness of the aircraft before each flight including on board fuel level verification.
All maneuvers at load factor less than - 0.5 g must be performed for no longer than 5 seconds.
In single pilot operation, belt and shoulder harness of the vacant seat must be secured to avoid uncontrolled movement of seat back and belt.

2.9 LOAD FACTOR LIMITATIONS

The load factors limit used for the calculation of the structures are conforming to CS-VLA rules:

Flap retracted		**Flap extended**	
- Maximum positive load factor	**3.8 (+)**	- Maximum positive load factor	**2.0 (+)**
- Maximum negative load factor	**1.9 (-)**	- Maximum negative load factor	**0.0 (+)**

2.10 OPENING CANOPY LIMITATIONS

During flight, engine operation and taxi operation the canopy must remain closed and securely locked via the 4-point hook locking system. The only exception is if the optional "taxi open system", safety locking mechanism has been fitted, in this case it is possible to slightly maintain the canopy open only during taxi and ground operations.

WARNING: during the flight is absolutely forbidden to hold the canopy in any position other than in the securely locked mode. Never try to open the canopy during the flight!

2.11 CREW

The minimum crew for flight operations is a person. The pilot can choose the place of command either the right or the left. The maximum number of people permitted on board is two.

2.12 PLACARDS

The following placards are to be located and visible to the pilot where an inspection or function is relevant and required in the designated area.

Located in baggage compartment

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BAGGAGE COMPARTMENT
Maximum 12 KG
Evenly distributed

Located in baggage compartment

FLYSYNTHESIS

TEXAN TC 580 ISR

Speed:	mph	Weight:	Kg
Vne (Not Exceeded)	155	Maximum Take-off	580
Vmo (Max Operating)	124	Empty Weight	330
Va (Min Maneuvering)	90	Minimum Pilot	70
Vfe (Max Full Flap)	75	Maximum Pilot + passenger	180
Vs (Stall)	46		
Vso (Stall with flap)	40		

AEROBATIC MANOEUVRES AND SPINS ARE PROHIBITED

Located on the tail boom

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TEXAN TC 580 ISR DATA PLATE

Fuselage s/n _____
Date of Manufacture _____
Engine Type _____
Engine s/n _____

Located on the Instrument panel (if custom Intelligent Propeller is installed)

Propeller Pitch Control
–
Only Automatic Mode is approved

SECTION 3

Emergency procedures

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3.1 INTRODUCTION

An emergency situation is extremely rare; even so, the pilot responsible for the aircraft should meticulously carry out daily pre-flight controls checks. A safe airworthy aircraft should be maintained according to the requirements of the accompanying maintenance manual. This section contains the recommended procedures should an emergency arise. It is strongly advised that Pilots become familiar with these procedures.

3.2 GROUND EMERGENCY PROCEDEDURES

ENGINE ON FIRE

1. Fuel tank faucet - Close
2. Electric fuel pump - Off
3. Cabin heating - Off
4. Throttle - All forward
5. Master switch - OFF
6. Ignition magnets key - OFF
7. Get out of the aircraft immediately
8. If possible, use an extinguisher to extinguish the fire.

WARNING: Not remove the engine cowling until the complete extinction of the fire.
Don't use water to extinguish the fire.

3.3 TAKE OFF EMERGENCY PROCEDURES

TAKE OFF INTERRUPTION (during take off run)

1. Throttle - All rearward (reduce to minimum RPM)
2. Brakes - Brake and avoiding skidding the wheels
3. Flap - Retract
4. Ignition magnets key - OFF
5. Master switch - Off
6. Fuel tank faucet - Off

ENGINE FAILURE DURING TAKE OFF (after rotation - below 50 mt)

1. Fuel tank faucet - Close
2. Electric fuel pump. - Off
3. Master switch & ignition magnets key - Off
4. Safety belts - Tighten well
5. Maintain a linear line of flight, without turning if possible, and if the area allows it, get ready for a forced landing (see relative paragraph)

ENGINE FAILURE DURING TAKE OFF (during climb)

If the height allows it, proceed in the following way:

1. Best glide speed - 68 mph
2. Electric fuel pump - Verify ON
3. Fuel tank faucet - Verify RH tank faucet open
4. Fuel tank level - check fuel quantity
5. Fuel pressure - Verify within limits

6.	Ignition magnets key	- Verify ON
7.	Throttle	- Position warm engine starting
8.	Engine start procedure	

- If the engine immediately starts up climb to a safe height and land ASAP for a check.
- If the engine doesn't start up prepare for an emergency landing & proceed as follows:

9.	Flap	- As necessary (30° or 45°)
10.	Fuel tank faucet	- Close
11.	Electric fuel pump	- Off
12.	Master switch & ignition magnets key	- Both Off

WARNING: Land AS SOON AS POSSIBLE in case of fire on board.
- Never perform a 180° turn from too low a height in an effort to return to the runway.

3.4 DURING FLIGHT EMERGENCY PROCEDURES

ENGINE ROUGHNESS/ ENGINE SHUTDOWN

1.	Throttle	- Check position and friction
2.	Check engine instruments	- Check parameters
3.	Choke lever	- OFF / All rearward
4.	Fuel tank faucet	- Select tank with maximum fuel
5.	Electric fuel pump.	- ON
6.	Fuel pressure	- Verify within limits
7.	Warm air to carburetors	- ON
8.	Ignition magnets key	- Both / Verify
9.	Master switch	- Verify / ON
10.	Throttle	- Position warm engine starting
11.	Start	- Operate start procedure
12.	Check all the engine parameters and land as soon as possible for a full check	

WARNING: If the engine doesn't start up choose a proper zone for an emergency landing.

ENGINE ON FIRE

1.	Fuel tank faucet	- Close
2.	Electric fuel pump	- Off
3.	Throttle	- All forward
4.	Vent system	- All closed
5.	Cabin heating system	- Off
6.	Master switch & ignition magnetos key	- Off
7.	Best glide speed	- 68 mph
9.	Landing ASAP	

WARNING: Do **not** attempt to re-start the engine even if engine fire has ceased, but prepare for an emergency landing.

STALL RECOVERY PROCEDURE

1. Apply full power to reduce the loss of height.
2. Push softly forward the control stick to eliminate the stall conditions.

NON-INTENTIONAL SPIN RECOVERY PROCEDURE

WARNING: don't try to stop the rotation using the opposite ailerons

1. Throttle - At minimum RPM
2. Rudder pedals - All opposed to the sense of rotation
3. Control stick - Neutral, softly to dive
4. When the rotation stops and the aircraft is under control, return to level flight,

WARNING: do not exceed the Vne speed.

3.5 ELETRICAL WIRING FAILURE

GENERATOR WARNING LAMP LIGHTING

1. Voltmeter - Check voltage (if installed)
2. Non essential electric equipment - Off
3. Land ASAP

A fully charged and functional battery should permit the operation of trim, flap and aux electric fuel pump for about 20 minutes.

OVERVOLTAGE (Voltmeter indication [if installed] over 16 V)

1. Master switch - Off
2. Voltmeter - Verify the decrease of voltage
3. Master switch - On
4. Voltmeter - Verify the increase of voltage (within limits)

If the voltage does not return within limits, proceed as follows

5. All non-essential electrical equipment must be switched off
6. Land ASAP

A fully charged and functional battery should permit the operation of trim, flap and aux electric fuel pump for about 20 minutes.

LOW VOLTAGE IN FLIGHT

1. Possible causes - Excessive consumption (Too many appliances on)
   - Damage of the alternator
   - Interrupted fuse
2. Landing ASAP

LOW VOLTAGE ON GROUND

1. RPM - Reduce
2. Navigation and landing lights - Off
3. Voltmeter - Verify within limits
4. If the check has negative result - Shutdown engine

ELECTRICAL WIRING or EQUIPMENT ON FIRE

An electrical fire is recognizable by the distinct odor of burning plastic and white smoke.

1. Master switch - Off
2. Vent systems - All open
3. Cabin heating - Off
4. Landing ASAP

WARNING: get ready to possibly land without the use of flaps and trim (if electric).

SMOKE ELIMINATION FROM CABIN

1. Vent systems - All open
2. Cabin heating - Off
3. Master switch - Off
4. If the smoke remains dense land immediately.

WARNING: absolutely **DO NOT** open the canopy.

3.6 LANDING EMERGENCY PROCEDURES

LANDING WITHOUT FLAPS

1. Verify flap/trim circuit breaker is in the **ON** position.
2. Verify the position of both the flaps visually

With flaps in symmetrical position (both retracted or extracted at the same angle)

3. Try to retract the flaps
4. Verify that there is enough free space from obstacles for a safe landing
5. Land as normal but maintain a landing speed not less than 55 mph

LANDING WITH A DEFLATED TIRE

1. Landing as per normal condition
2. Before contacting the ground shutdown the engine and turn off electrical equipment.
3. When landing hold-off contact with the ground on the side of the deflated tire for as long as possible
4. Get ready for a tendency to yaw on the side of the deflate tire
5. Maintain the directionality with rudder and nose wheel steering
6. If nose wheel is deflated maintain backpressure on control stick and keep the nose wheel in a central position.

FORCED LANDING

1. Best glide speed - 68 mph
2. Safety belts - Tighten well
3. Throttle - All rearward (minimum position)
4. Fuel tank faucet - Closed
5. Electric fuel pump. - Off
6. Master switch & ignition magnetos key - Off

CAUTION: Choose a suitable area for an emergency landing.

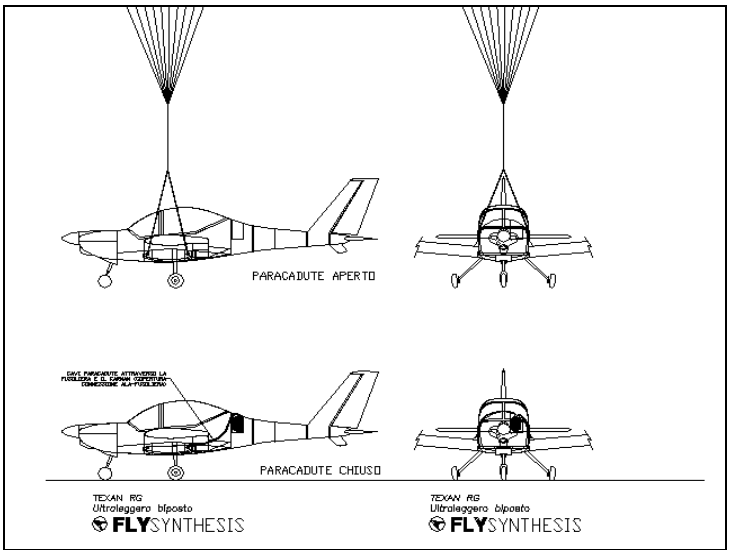
7. Flap - As necessary
8. Trim - As necessary

9. Final - Check velocity
10. Landing - Check velocity (at least 44 mph, flap with 45°).

The contact with the ground should happen at the minimum possible speed, maintain lifted the nose wheel for the longest possible time.

3.7 OPENING PARACHUTE PROCEDURE (IF INSTALLED)

The emergency parachute is located in the left back part behind the canopy, situated in a special carbon canister inside the fuselage. The emergency parachute is fixed to the aircraft through four steel ropes, passing in the internal part of the fuselage, attached to antitorsion tube of the wing. The emergency parachute must be used only in case of complete loss of the control of the aircraft.



a. Shutdown the engine (magnetos OFF)
b. Pull red handle between the two seats, at least 20 centimeters,
c. Close both fuel faucets
d. Tighten the safety belts
e. Shutdown the electric plant (Master OFF)
f. Do crouch and to protect the face with the hands

For further information and notes on function and maintenance, consult the parachute manual.

3.8 OTHER EMERGENCY

OIL TEMPERATURE & PRESSURE IN YELLOW ARC OR REL LINE

If the oil pressure is low (yellow arc) but the oil temperature is in normal operation range (green arc)

- Land ASAP as per normal procedure.

If the oil pressure indication is too low or too high (red arc)

- Land ASAP and get ready for a forced landing (see relative paragraph)

LOW FUEL PRESSURE

1. Electric fuel pump - On
2. Fuel tank faucets - Open alternately the faucets to check the fuel circuit
3. Fuel pressure - Check within limits
4. If the fuel pressure does not reach the normal operating range, land **ASAP**

UNINTENTIONAL FLIGHT WITHIN ICING CONDITIONS

WARNING: Flight in known icing conditions, snow and heavy rain is prohibited.

If you meet unintentional icing condition during the flight, descend as soon as possible to a lower height. If the wing leading edge and the stabilator leading edge are covered by ice formations, remember that stall speed will increase, you will need more engine power to maintain the same velocity and the maneuverability of the airplane will decrease.

1. Carburetor heating system (if installed) - On
2. Engine RPM - Maintain the maximum continuous engine power
3. Cabin heating (if installed) - On
4. Move all control surfaces to break potential icing formations.

ICING FORMATIONS ON CARBURETTORS

You can recognize icing formations on carburetors if RPM decreases without moving the throttle. You can find this phenomenon during a descent with low RPM in a day with a lot of humidity.

1. Carburetor heating system (if installed) - On
2. Throttle - All forward when RPM starts to increase
3. Carburetor heating system (if installed) - Off
4. Reinstate normal flight conditions

ABNORMAL ENGINE VIBRATIONS

1. Verify the reduction of the vibrations with a reduction of the RPM's
2. Land as soon as possible
3. Be prepared for a possible engine failure and to commence a forced landing

LANDING WITH BRAKE SYSTEM FAILURE

1. Look for a long grassy runway with absence of obstacles (the grass has a light braking action)
2. Land with the flaps to the maximum extension and reduce speed to the minimum safe speed

(*After touching the ground)*

3. Master switch & ignition magnets key - Off

3.9 PROPELLER PITCH CONTROL SYSTEM EMERGENCY (only if equipped with Idrovario propeller and CIP control system)

NOT POSSIBLE TO REACH MAXIMUM RPMs DURING TAKE-OFF (during take-off run)

If it is not possible to reach maximum rpms **during take-off run, ABORT the take-off.**

HYDRAULIC PITCH CONTROL SYSTEM FAILURE

In case of loss of hydraulic oil pressure of the control system, the system is designed to reduce the pitch to the minimum value. This means that the propeller will be set in take-off and climb position.

If this failure occurs, **land ASAP**!!

WARNING:
During the remaining part of flight, reduce the power to avoid overpassing the maximum value of engine rpms.

For further details, see the propeller manual.

For further details on possible failures of the CIP control system and propeller pitch control system see the respective manuals.

SECTION 4

Normal procedures

Title	Page
4.1 Introduction	**29**
4.2 Speed for normal employment	**29**
4.3 Fuel circuit draining procedure and refueling operations	**29**
4.4 Pre-flight Inspection	**29**
4.5 Flight inside heavy rain	**36**

4.1 INTRODUCTION

This section contains the information for normal flight conditions and the checklist to follow before every flight.

4.2 SPEED FOR NORMAL EMPLOYMENT

Except otherwise suitable, the following speeds refer to the maximum take-off weight equal to 580 Kg and can be used for any inferior weight.

Take off (Flap 15°)	**Rotax 912 ULS**
Rotation	46 mph
Speed at 50 ft (15 m) obstacle	53 mph
Climb	
Best angle of climb speed Vx, (5° flap),	55 mph
Best rate of climb speed Vy, (0° flap)	81 mph
Cruise	
Maneuvering speed (Va)	90 mph
Max speed in turbulent air conditions (Vmo)	124 mph
Never Exceeding Speed (Vne)	155 mph
Landing approach	55 mph
Landing (Flap 45°)	44 mph
Touch & go (Maximum power, flap 20°)	55 mph
Maximum demonstrated crosswind velocity	19 mph

4.3 FUEL CIRCUIT DRAINING PROCEDURE AND REFUELLING OPERATIONS

The fuel circuit draining procedure must be done before the first flight of the day, 10 minutes after the refueling and if the aircraft has remained parked for more than three hours between two flights.
The fuel circuit draining is performed through the Gascolator filter, situated in the right lower part of the firewall. Use a transparent and clean container, drain about 80 - 100 cc of fuel. Verify the absence of water.

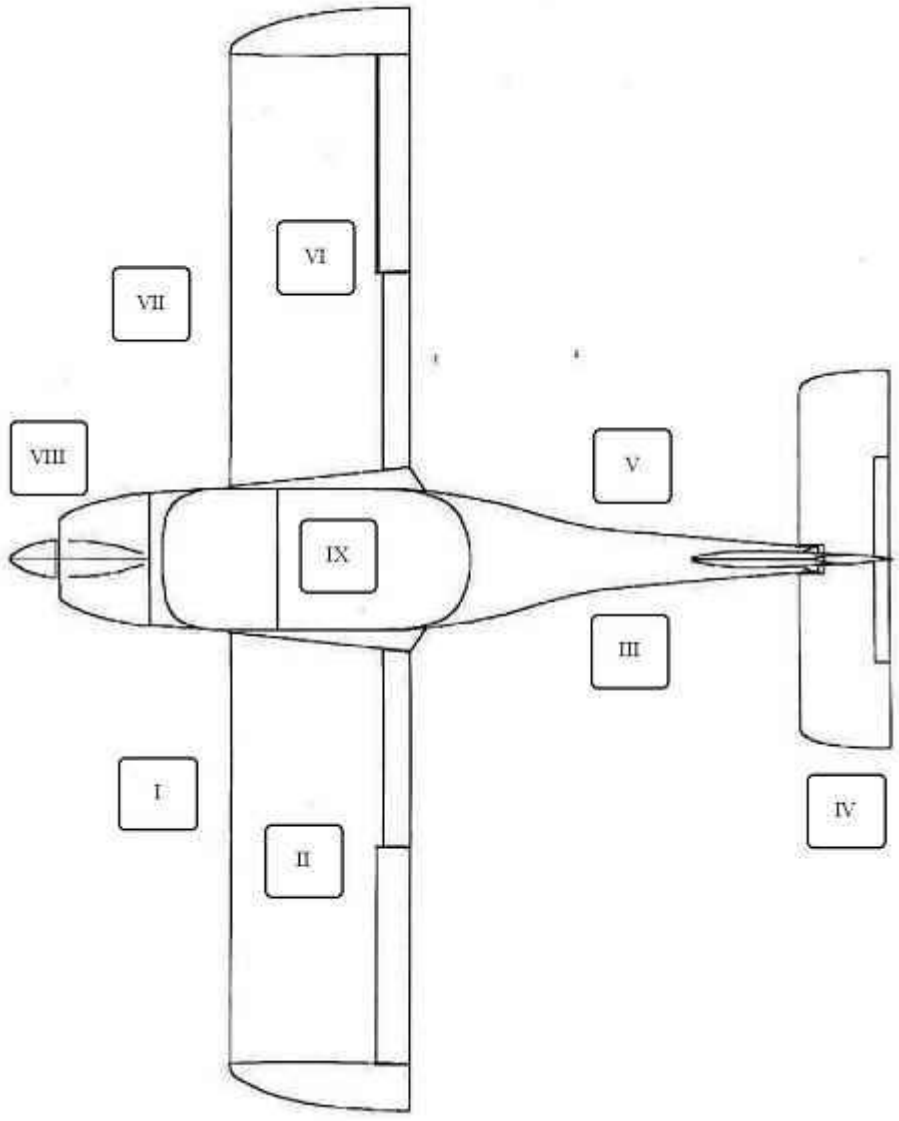
CAUTION: Perform the fuel circuit draining operation before moving the airplane from the parking area, to avoid any mixing of condensate water if present on the fuel tanks. If water is present repeat the fuel circuit draining operation until no water is evident.

Refuel through the fuel filler located on the upper layer of the wings, either by jerry cans or directly with the gasoline pump.

CAUTION: As the Texan employs an overflow fuel system that returns excess fuel to the Right hand side tank, it is recommended to always use the right side fuel tank. When the right tank is near empty use the left tank. To avoid the right tank being overfilled with excess fuel, frequently alternate the use of both fuel tanks during the cruise. **The drawing of fuel simultaneously from both tanks is not recommended.**

4.4 PRE-FLIGHT INSPECTION

WARNING: Before every flight the pilot must check completely the airplane with great attention and accuracy.
In this section there is a standard pre-flight checklist. (Valid for each version)



The pre-flight inspections must be carried out **BEFORE EVERY FLIGHT**. The pilot in command is responsible for such inspections. The inspection does not require any special tooling, although a flashlight can be useful for inspecting dark areas. The purpose of the pre flight inspection is to verify that there's no evidence of defective parts or problems that can endanger the safety of flight.

Remove all the protections

1. Pitot-cover,
2. Wheel stops,
3. Mobile surfaces stops,
4. Canopy covering,
5. Propeller protection,
6. Fuel draining procedure.

Left main landing gear (I)

Leg	no distortion, bolts locked, no sign of cracks on weldings
Brake assembly	condition and tightness
Tire	general good condition, inflated correctly
Wheel fairing	good condition and free space between the wheel and mounting bracket.

Left wing (II)

Wing surface	absence of buckling, absence of delamination
Karman	absence of delamination, fixed correctly
Leading edge	absence of delamination,
Wing tip	no defects, fixed correctly
Trailing edge	absence of delamination, no signs of cracks
Flap & aileron	absence of delamination, no signs of cracks, free movement, no excessive play on hinges, fixed correctly, balancing mass fixed correctly, no signs of lateral movement.

Fuselage left side (III)

Fuselage surface	absence of buckling, absence of delamination, inspection holes closed

Empennage (IV)

Vertical fin	absence of buckling, absence of delamination
Rudder	absence of delamination, hinges fixed correctly

CAUTION: Lower the tail of the aircraft to lift the nose wheel, check the free movement of the rudder, any problem on the hinge.

Bowden cables	fixed correctly.
Stabilator	free movement during all travel range, absence of buckling, absence of delamination
Stabilator hinge	absence of delamination, fixed correctly, no play
Balancing mass	fixed, no play
Hinge pins	fixed correctly
Trim tab	free movement, absence of defects, and no play.

Fuselage right side (V)

Fuselage surface	absence of buckling, absence of delamination, inspection holes closed

Right wing (VI)

Wing surface	absence of buckling absence of delamination
Kerman	absence of delamination, fixed correctly
Leading edge	absence of delamination,
Wing tip	no defects, fixed correctly
Trailing edge	absence of delamination, no signs of cracks
Flap & aileron	absence of delamination, no signs of cracks, free movement, no excessive play on hinges, fixed correctly, balancing mass fixed correctly, no signs of lateral movement.
Pitot tube	no defects, no blockage and fixed correctly

Right main landing gear (VII)

Leg	no distortion, bolts locked, no sign of cracks on weldings
Brake assembly	condition and tightness
Tire	general good condition, inflated correctly
Wheel fairing bracket.	good condition and free space between the wheel and mounting

Nose wheel (VIII)

Fixing axle bolts	check correct tightness
Wheel fairing	good conditions and free space between the wheel and mounting bracket.
Tire	general good condition, inflated correctly
Damper	no signs of cracks or distortion, free movement
Nose wheel support structure	no signs of cracks or distortion.

Propeller (VIII)

Hub & blades	no signs of cracks and is clean.
Spinner	no signs of cracks, fixed correctly

Engine (VIII)

Upper cowling	remove
Oil tank	check level
Coolant tank	check level
Radiator and air inlet	no signs of cracks, free from obstructions
Engine	clean, no oil or coolant leakage
Muffler & silencer manifold	no signs of cracks and muffler springs hooked.
Oil and coolant tube system	correct functionality, no leakage
Ignition & electrical wiring	correct functionality.
Throttle & choke cables	free movement
Prop. system oil tube	No air bubbles inside
Upper cowling	reinstall and check tightness.

Check inside cabin (IX)

Instruments panel	- fixed correctly, all placards present
Master switch ON	- all instruments ON
Master switch OFF	- all instruments OFF
Control stick	- full free movement, fixed correctly in its support
Rudder pedals	- no distortion or signs of cracking, correct operation of centering system and support fixed correctly.
Throttle & choke levers	- free movement, fixed correctly in the support
Brake lever & parking brake	- remove parking brake lock and check lever functionality. - Insert parking brake.
Trim lever	- check correct functionality
Safety belts	- check correct functionality
Seats,	- fixed correctly.
Canopy	- clean, no signs of cracks, correct functionality of locking system.
Windshield	- clean, fixed correctly on fuselage
Luggage	- secured.
Weight & balance	- calculated.
Flight logbook	- record the airtime.

BEFORE STARTING ENGINE

Pre-flight check	- completed
Seats	- adjusted
Safety belts	- adjusted and fastened
Canopy	- closed and locked
Parking brake	- ON
Flight controls	- free
Fuel faucets	- RH open, LH closed
Trim	- Neutral

ENGINE START

Engine cold	- ON Choke lever (all rearward)
Engine warm	- OFF Choke lever (all forward)
Electric fuel pump	- ON for 10 sec. then OFF
Throttle	- At minimum + 1 cm.
Master switch	- ON
Generator warning lamp	- ON
Ignition magnets key	- each magnetos ON

WARNING: Ensure that the propeller area is clear of any person or object "**CLEAR PROP**"

Start procedure	- Max 20 sec of starting, rest one minute before retrying
Throttle	- 2500 RPM for R912
Oil pressure	- Green arc in 5 sec.
Generator warning lamp	- OFF
Electric fuel pump	- OFF

BEFORE TAXIING

Electrical system	- ON and checked
Navigation instruments	- checked
Flaps	- Position to take off (15°)
Parking brake	- OFF

TAXIING

Brakes	- check both operate equally
Flight control	- free full movement, stick and pedals
Flight instruments	- Check magnetic compass and set altimeter and set gyro's if fitted.
Throttle	- As necessary

ENGINE CHECK

Rotax 912 ULS

Parking brake	- ON
Fuel tank faucets	- RH Open, LH Closed
Temperature & pressure	- Within limits, in green arc
Trim	- Neutral
Flight controls	- Free
Check magnetos	- 4000 RPM maximum decrease 300 RPM for each magnets
Throttle	- All forward, check minimum 5000-RPM +/- 150 for 5 sec. 5500 RPM min (if in-flight variable pitch propeller is installed)
Check minimum RPM	- 1400 RPM

CAUTION: Don't apply full power before 60° C of CHT.

During taxing don't allow the engine CHT to exceed 135° C

BEFORE TAKE-OFF

Flight controls	- Full and free
Trim	- Neutral
Electric fuel pump	- ON
Flaps	- Set for take-off (15º)
Fuel tank faucets	- RH Open, LH Closed
Engine instruments	- Within limits
Flight instruments	- Check and regulated
Safety belts	- adjusted and fastened
Canopy	- check 4 locks are engaged and locked - Check canopy open lamp OFF
Parking brake	- OFF

TAKE-OFF

Aircraft	- Align with runway
Throttle lever	- Full open smoothly
At (40KTS)	- Rotation

WARNING: for a take off from short runway with an obstacle of 15 m, use flap with 20°.
- Rotation - 46 mph
- Climb speed - (Vx) 55 mph

At an altitude of 100 m (300 ft), if a steep climb is necessary to clear obstacles

Flaps	- Up
Trim	- As necessary
Speed	- Vx or Vy
Throttle	- As necessary
Electric fuel pump	- Off

CAUTION: Don't maintain the flaps extended with speed higher than 68 mph (Vfe).

CLIMB

	Rotax 912 ULS
Engine RPM	- 5000 RPM. (5500rpm for variable pitch propeller installed)
Engine instruments	- Within limits
Trim	- As necessary

CRUISE

	Rotax 912 ULS
Throttle	- As necessary
Engine RPM	- Max cont power 5500 RPM
Engine instruments	- Within limits

CAUTION: Check frequently engine instruments and do not exceed limits.

DESCENT

Altimeter	- Setting
Warm air to carburetor system	- As necessary
Throttle	- As necessary
Trim	- As necessary
Engine instruments	- Within limits

LANDING

Speed	- 66 mph
Flap	- As necessary
Trim	- As necessary
Throttle	- As necessary
Electric fuel pump	- ON

Parking brake check (see note b)	- Check, should be off
Final Approach speed	- 55 mph
Touch down speed	- 46 mph

CAUTION: a) in conditions of strong cross wind or in presence of wind shear, increase the landing speed by at least (5 mph)
b) Before landing check brake system pressure by operating the brake lever a couple of times if the braking system is serviceable you should feel the resistance when pressure is applied.

TOUCH & GO

Throttle	- All forward
Trim	- As necessary
Flap	- 15°
Speed	- Vx o Vy

If you touch the ground repeat take off procedure.

AFTER LANDING

Throttle	- Idle
Flaps	- UP
Electric fuel pump	- OFF
Brakes	- Check functionality with “warm brakes”

ENGINE SHUTDOWN

Throttle	- Idle
Parking brakes	- ON
Electrical consumers	- OFF
Magnetos	- OFF (one by one) check RPM drop
Master switch	- OFF
Fuel tank faucets	- closed

4.5 FLIGHT INSIDE OF HEAVY RAIN

WARNING: Flying inside heavy rain is prohibited

Flying inside heavy rain is forbidden as visibility and performance of the flight is reduced, however if unavoidable reduce speed to 92 mph and remember to increase the landing speed by at least (5 mph) with wet wing**. The activity of flight inside intense heavy rain is forbidden.**

SECTION 5 - Performances

Title	Page
5.1 General information	**38**

5.1 GENERAL INFORMATION

This section contains all the performance data required for accurate pre-flight planning.

SCHEME OF TAKE-OFF & LANDING PHASES

Figure 5-1 show the take-off and landing phases and medium value recorded

SPEED CONVERSION (DENSITY ALTITUDE)

The density altitude chart (figure 5-2) is provided to determine the density altitude for outside air temperature and pressure altitude combinations.

UNIT CONVERSION

Figure 5-3 shows the linear scales for conversion of [Km/h – KTS – m/s].
Figure 5-4 shows the linear scales for conversion of [m/s - feet/min and KTS – m/s].
Figure 5-5 shows the linear scales for conversion of [m –feet].

DEMONSTRATED CROSS WIND COMPONENT

The maximum demonstrated crosswind is 19 KTS
Figure 5-6 shows the RELATIVE WIND DIAGRAM VERSUS WIND COMPONENT

ENVELOPE DIAGRAM

Figure 5.7 shows the envelope diagram.

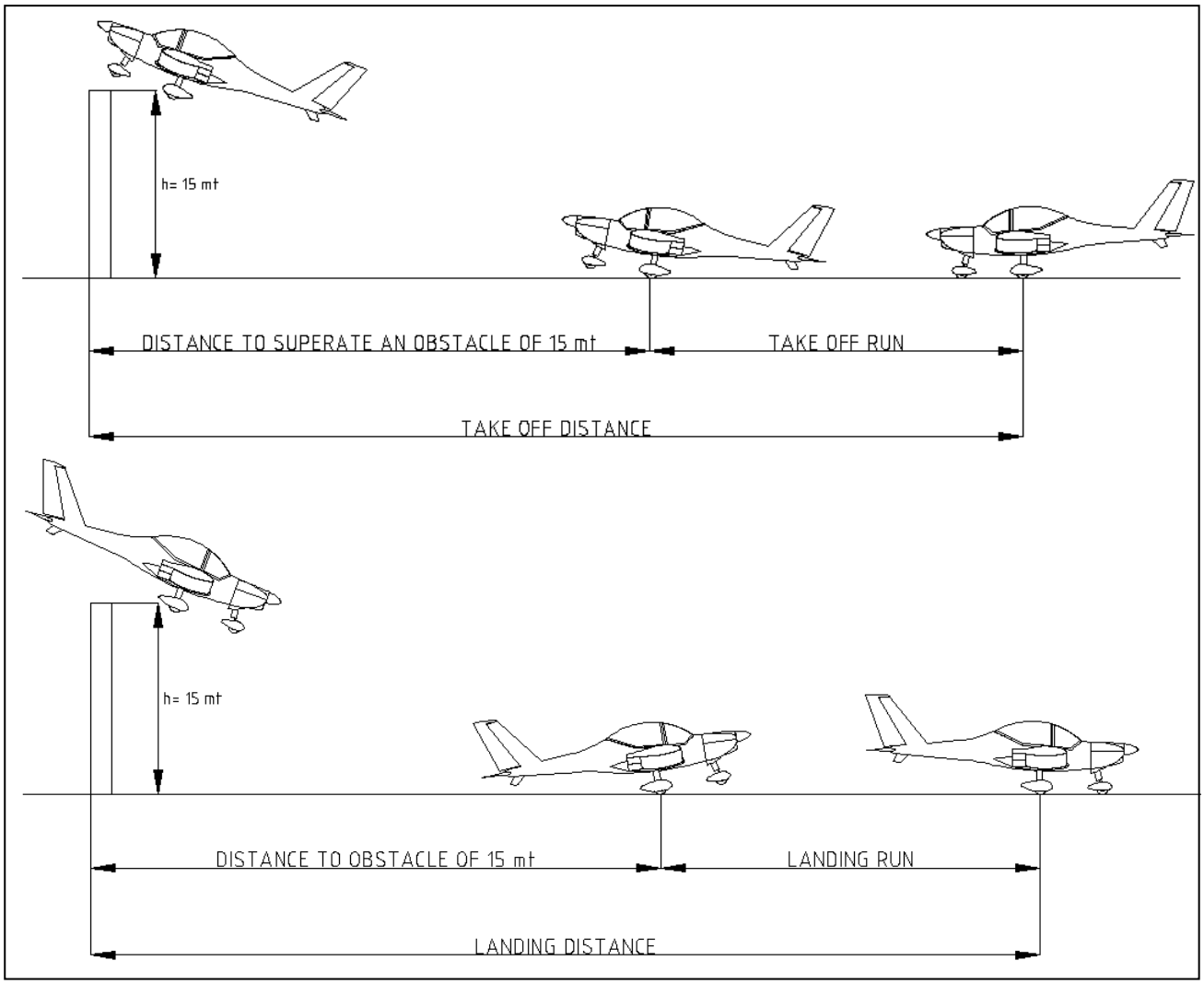


Figure 5-1

Take off run	Take off distance	Take off speed
125 m	**360m**	**53 mph**
Landing distance	Landing run	Landing speed
275 m	**95 m**	**55 mph**

SPEED CONVERSION (DENSITY ALTITUDE)

This table helps you to calculate the TAS (true airspeed) from the IAS (indicated airspeed) using the simplified formula:

TAS = IAS*Cor. factor

ICAN (international commitee for air navigation) temperatures, relative pressure, relative density and IAS to TAS correction factors as related to altitude

Altitude		Temperature		Relative	Relative	Cor. factors
feet	metres	°C	°F	pressure	density	
-2.000	-610	18,96	66,13	1,074	1,059	0,971
-1	-305	16,98	62,56	1,036	1,029	0,985
0	0	15	59	1	1	1
1.000	305	13,01	55,43	0,964	0,971	1,014
2.000	610	11,03	51,86	0,929	0,942	1,029
3.000	914	9,056	48,30	0,896	0,915	1,045
4.000	1219	7,075	44,73	0,863	0,888	1,061
5.000	1524	5,094	41,16	0,832	0,861	1,077
6.000	1829	3,113	37,60	0,801	0,835	1,090
1.000	2134	1,132	34,03	0,771	0,810	1,110
8.000	2438	-0,850	30,47	0,742	0,785	1,128
9.000	2743	-2,831	26,90	0,714	0,761	1,145
10.000	3090	-4,812	23,33	0,687	0,738	1,163
11.000	3353	-6,793	19,77	0,661	0,715	1,182
12.000	3658	-8,774	16,20	0,635	0,693	1,201
13.000	3916	-10,75	12,64	0,611	0,671	1,220
14.000	4267	-12,73	9,074	0,587	0,649	1,240
15.000	4572	-14,71	5,507	0,564	0,629	1,260
16.000	4877	-16,69	1,941	0,541	0,608	1,281
17.000	5182	-18,68	-1,625	0,520	0,589	1,302

Figure 5-2

UNIT CONVERSIONS

kilometers per hour (km/h) - knots (kts) - metres per sec. (m/s)

km/h	kts	m/s	km/h	kts	m/s	km/h	kts	m/s
1,853	1	0,37	63,00	34	18,34	124,16	67	36,15
3,706	2	1,07	64,86	35	18,88	126,01	68	36,69
5,560	3	1,61	66,71	36	19,42	127,87	69	37,23
7,413	4	2,15	68,56	37	19,96	129,72	70	37,77
9,266	5	2,69	70,42	38	20,50	131,57	71	38,31
11,11	6	3,23	72,27	39	21,04	133,43	72	38,86
12,97	7	3,77	74,12	40	21,58	135,28	73	39,39
14,82	8	4,31	75,98	41	22,12	137,13	74	39,93
16,67	9	4,85	77,83	42	22,66	198,99	75	40,47
18,53	10	5,39	79,68	43	23,20	140,84	76	41,01
20,38	11	5,93	81,54	44	23,74	142,69	77	41,54
22,23	12	6,47	83,39	45	24,28	144,55	78	42,08
24,09	13	7,01	85,24	46	24,82	146,40	79	42,62
25,94	14	7,55	87,10	47	25,36	148,25	80	43,16
27,79	15	8,09	88,95	48	25,90	150,10	51	43,70
29,65	16	8,63	90,80	49	26,44	151,96	82	44,24
31,50	17	9,17	92,66	50	26,98	153,81	83	44,78
33,35	18	9,71	94,51	51	27,52	155,66	84	45,32
35,21	19	10,25	96,36	52	28,05	157,52	85	45,86
37,06	20	10,79	98,22	53	28,59	159,37	86	46,40
38,91	21	11,33	100,07	54	29,13	161,22	87	46,94
40,77	22	11,81	101,92	55	29,67	163.08	88	47,48
42,62	23	12,41	103,77	56	30,21	164,93	89	48,02
44,47	24	12,95	105,63	57	30,75	166,78	90	48,56
46,33	25	13,49	107,48	58	31,29	168,64	91	49,10
48,18	26	14,03	109,33	59	31,83	170,49	92	49,64
50,03	27	14,56	111,19	60	32,37	172,34	93	50,18
51,80	28	15,10	113,04	61	32,91	174,20	94	50,12
53,74	29	15,64	114,89	62	33,45	176,05	95	51,26
55,59	30	16,18	116,75	63	33,99	177,90	96	51,80
57,44	31	16,72	118,60	64	34,53	179,76	97	52,34
59,30	32	17,26	120,45	65	35,07	181,61	98	52,88
61,15	33	17,80	122,31	66	35,61	183,46	99	53,42

Figure 5-3

metres per second (m/s) - feet per minute (100 ft/min)

m/sec.		100 ft/min	m/sec.		100 ft/min	m/sec.		100 ft/min
0,50	1	1,96	10,66	21	41,33	20,82	41	80,70
1,01	2	3,93	11,17	22	43,30	21,33	42	82,67
1,52	3	5,90	11,68	23	45,27	21,84	43	84,64
2,03	4	7,87	12,19	24	47,24	22,35	44	86,61
2,54	5	9,84	12,75	25	49,21	22,86	45	88,58
3,04	6	11,81	13,20	26	51,18	23,36	46	90,53
3,55	7	13,78	13,71	27	53,15	23,87	47	92,52
4,06	8	15,74	14,22	28	55,11	24,38	48	94,48
4,57	9	17,71	14,73	29	57,08	24,89	49	96,45
5,08	10	19,68	15,24	30	59,05	25,45	50	98,42
5,58	11	21,65	15,74	31	61,02	25,90	51	100,4
6.09	12	23,62	16,25	32	62,92	26,41	52	102,3
6,60	13	25,51	16.76	33	64,96	26,92	53	104,3
7,11	14	27,55	17,27	34	66,92	27,43	54	106,2
7,62	15	29,52	17,78	35	68,89	27,94	55	108,2
8,12	16	31,49	18,28	36	70,86	28,44	56	110,2
8,63	17	33,46	18,79	37	72,83	28,95	57	112,2
9,14	18	35,43	19,30	38	74,80	29,46	58	114,1
9,65	19	37,40	19,81	39	76,77	29,97	59	116,1
10,16	20	39,37	20,32	40	78,74	30,48	60	118,1

knots (kts) - metres per second (m/s)

	0	1	2	3	4	5	6	7	8	9
0	0	0,51	1,02	1,54	2,05	2,57	3.08	3,60	4,11	4,63
10	0,51	5,65	6,17	6,66	7,20	7,71	8,23	8,74	9,26	9,77
20	10,28	10,80	11,31	11,83	12,34	12,86	13,37	13,89	14,40	14,91
30	25,43	15,94	16,46	16,97	17,49	18,00	18,52	19,03	19,54	20,06
40	20,57	21,09	21,60	22,12	22,63	23,15	23,66	24,17	24,69	25,20
50	25,72	26,23	26,75	27,26	27,76	28,29	28,80	29,32	29,83	30,35
60	30,86	31,38	31,89	32,41	32,92	33,43	33,95	34,46	34,98	35,49
70	36,00	36,52	37,04	37,55	38,06	38,58	39,09	39,61	40,12	40,64
80	41,15	41,67	42,18	42,69	43,21	43,72	44,24	44,75	45,27	45,78
90	46,30	46,81	47,32	47,84	48,35	48,87	49,38	49,90	50,41	50,90

Figure 5-4

metres (m) to feet (ft) conversion table

metres (m)		feet (ft)	metres (m)		feet (ft)	metres (m)		feet (ft)
0,304	1	3,280	10,36	34	111,5	20,42	67	219,81
0,609	2	6,562	10,66	35	114,8	20,72	68	223,09
0,914	3	9,843	10,97	36	118,1	21,03	69	226,37
1,219	4	13,12	11,27	37	121,3	21,33	70	229,65
1,524	5	16,40	11,58	38	124,6	21,64	71	232,94
1,828	6	19,68	11,88	39	127,9	21,91	72	236,22
2,133	7	22,96	12,19	40	131,2	22,25	73	239,50
2,438	8	26,24	12,49	41	134,5	22,55	74	242,78
2,743	9	29,52	12,80	42	137,7	22,86	75	246,06
3,048	10	32,80	13,10	43	141,1	23,16	76	249,34
3,352	11	36,08	13,41	44	144,3	23,46	77	252,62
3,657	12	39,37	13,71	45	147,6	23,77	78	255,90
3,962	13	42,65	14,02	46	150,9	24,07	79	259,18
4,267	14	45,93	14,32	47	154,1	24,38	80	262,46
4,572	15	49,21	14,63	48	157,4	24,68	81	265,74
4,876	16	52,49	14,93	49	160,7	24,99	82	269,02
5,181	17	55,77	15,24	50	164,1	25,29	83	272,31
5,48	18	59,05	15,54	51	167,3	25,60	84	275,59
5,791	19	62,33	15,84	52	170,6	25,90	85	278,87
6,096	20	65,61	16,15	53	173,8	26,21	86	282,15
6,400	21	68,89	16,45	54	177,1	26,51	87	285,43
6,705	22	72,17	16,76	55	180,4	26,82	88	288,71
7,010	23	75,45	17,06	56	183,7	27,12	89	291,99
7,310	24	78,74	17,37	57	187,0	27,43	90	295,27
7,620	25	82,02	17,67	58	190,2	27,73	91	298,55
7,948	26	85,30	17,98	59	193,5	28,04	92	301,83
8,220	27	88,58	18,28	60	196,8	28,34	93	305,11
8,530	28	91,86	18,59	61	200,1	28,65	94	308,39
8,830	29	95,14	18,89	62	203,4	28,90	95	311,68
9,144	30	98,42	19,20	63	206,6	29,26	96	314,96
9,448	31	101,7	19,50	64	209,9	29,56	97	318,24
9,750	32	104,9	19,81	65	213,2	29,87	98	321,52
10,05	33	108,2	20,12	66	216,5	30,17	99	324,80

Figure 5-5

CROSS WIND TABLE

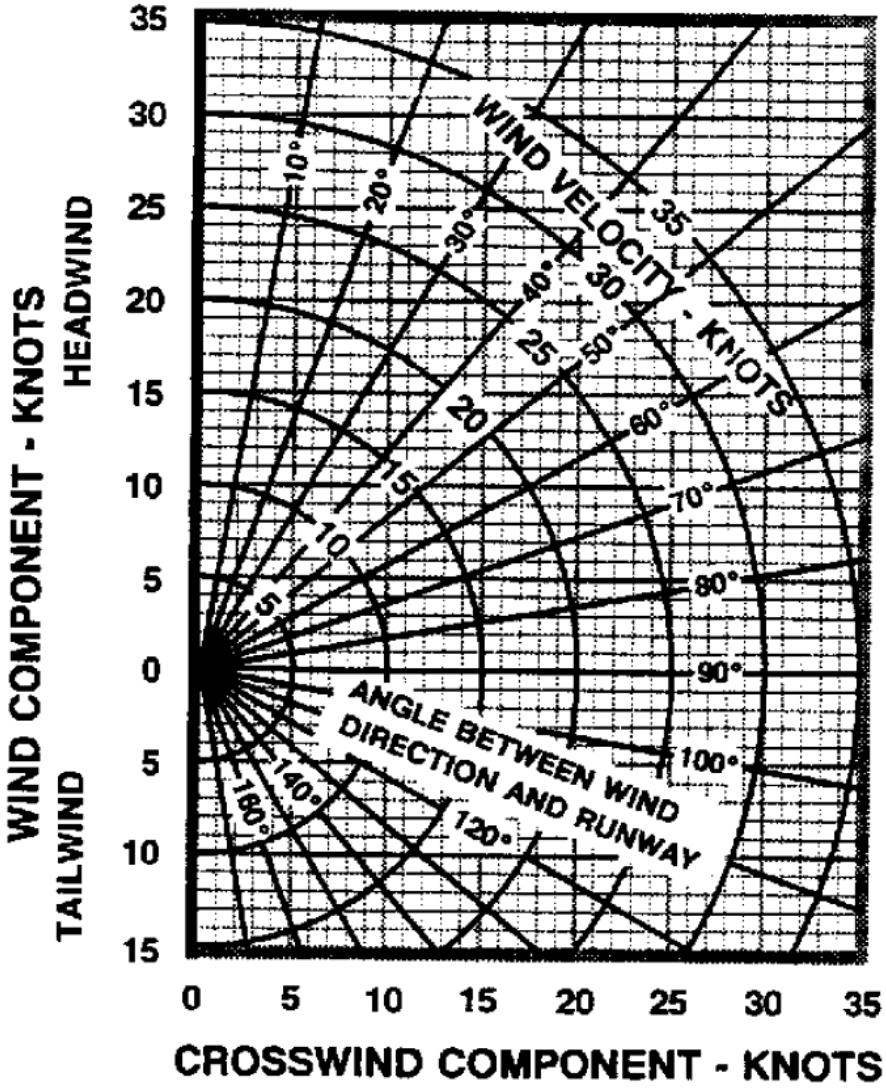
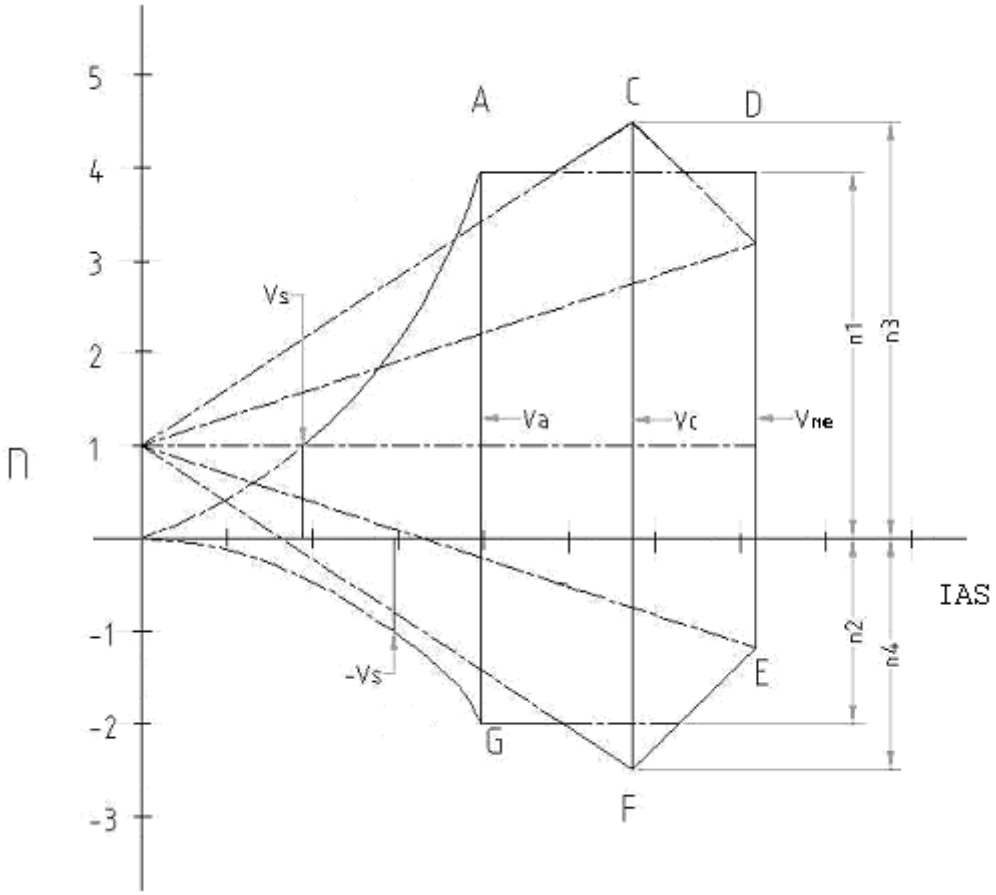


Figure 5-6

ENVELOPE DIAGRAM



Vso	Stall Speed with flap 45°	40 mph
Vs	Stall Speed without flap	46 mph
Vfe	Maximum speed with extended flap	75 mph
Va	Maneuvering speed	90 mph
Vc	Max cruise speed in turbulent air	124 mph
Vne	Never exceed speed	155 mph

SECTION 6

Weight & balance

Title	Page
6.1 Introduction	**47**
6.2 Weighing conditions	**47**
6.3 Weight & balance report	**48**

6.1 INTRODUCTION

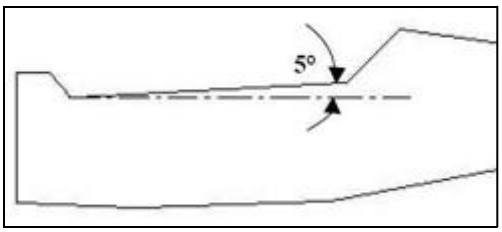
This section contains the information to affect a correct procedure of weight and balance of the aircraft.

WARNING: exceeding the Centre of Gravity limits can provoke serious problems of stability and govern-ability of the aircraft.

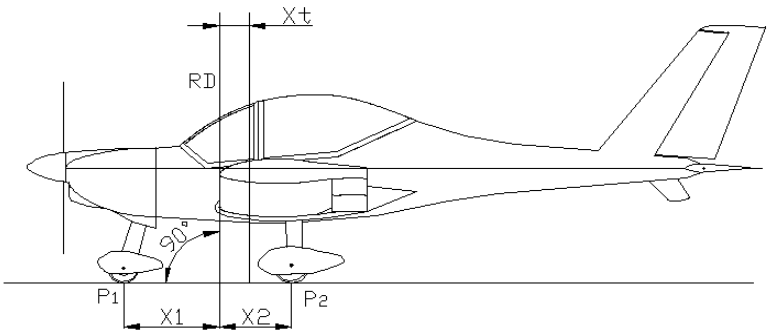
6.2 WEIGHING CONDITIONS

For the weighing of the aircraft, the followings conditions apply:

- The equipment installed must be approved by the factory for the aircraft in question.
- Must be included the brake fluid, engine oil, water coolant and the non-usable fuel.
- Must use three independent scales for each tire horizontal plan and of a thread to lead.
- To determinate the empty weight and the position of the Center of Gravity, the aircraft must be positioned on three autonomous scales, one for each wheel. It is fundamental that the longitudinal and lateral axes of the aircraft are both in the same horizontal plane. You can verify the horizontal datum position when the fuselage side reaches 5° with reference to ground level, as shown in the figure below.



Using a plum bob mark a line on the ground directly beneath the leading edge of the wing. This point is your reference datum **RD**. Measurements are to be taken from this point.



X1 is the distance from nose wheel axle centerline to projection of RD.
X2 is the distance from main wheel axle centerline to projection of RD.
The standard distance is:

X1 = 925mm (±0.5%)
X2 = 655mm (±0.5%).

The formula for CG calculation is as follows:

Xt = ML / PT . [CofG position in mm on the wing chord]

Where:
ML = (P2DX + P2SX) x X2 - P1 x X1
Xt% = (Xt / MAC) x 100 [CG position in percentage to the wing chord]

ML = Empty weight moment
P2DX , P2SX = Weight measured on main wheel
P1 = Weight measured on nose wheel

NOTE: DX = RHS SX = LHS

For greater W&B detail refer to the maintenance manual.

6.3 WEIGHT & BALANCE REPORT

The first recording of the Weighing Report & the Center of Gravity Position of the aircraft is taken at the factory before the delivery of the same aircraft.
Every variation due to the installation of new components or repairs and painting, implicate a new calculation of the empty weight and the relative positioning of the center of gravity.
Any weight and Balance changes should be recorded into the aircraft log book.

SECTION 7

Aircraft Ground Handling and Servicing

Title	Page
7.1 Aircraft ground movement	**50**
7.2 Aircraft ground anchorage	**50**
7.3 Aircraft cleaning	**51**
7.4 Aircraft servicing	**51**

7.1 AIRCRAFT GROUND MOVEMENT

Aircraft ground movement with engine running is as follows:

- Get on board
- Either lock or secure the canopy in taxi mode
- Start engine
- Verify the absence of obstacles or people/animals in the aircraft vicinity
- Remove the parking brake
- Use throttle to regulate the advancement speed and use the rudder pedals for steering the aircraft
- When the aircraft has reached the destination, shut off the engine, operate the parking brake and leave the aircraft.

WARNING: never leave the aircraft with engine running, this can be fatal both for you and for other people/animals in the aircraft vicinity.

Aircraft ground movement with engine off is as follows:

- Remove the parking brake
- Take the aircraft for the tail beam and pressing downward to lift the dumper
- Verify the absence of obstacles or people/animals in the aircraft range
- Push or pull the aircraft and direct it using only the principal wheels
- Operate the parking brake

An optional front wheel tow bar is available for aircraft movement.

7.2 AIRCRAFT GROUND ANCHORAGE

The aircraft ground anchorage system is available as an option. Anchorage of the aircraft can be performed by first setting ON the park brake then secure the ropes to each eyelet, located on the underside surface of each wing near the wing tip. When tightening the rope to ground mooring **DO NOT** apply too much tension force, a small amount of tension will suffice to secure the aircraft without risking the potential to stress surfaces inadvertently during heavy wind conditions.

CAUTION: It is a good practice to secure the control stick from inadvertent movement by latching to the seatbelts when the aircraft is left unattended or in windy conditions.

7.3 AIRCRAFT CLEANING

The aircraft is supplied with a kit for complete cleaning.

The following procedure is suggested for cleaning the aircraft.

- Do not use a pressure cleaner directly on the aircraft, as the gel-coat is hygroscopic.
- Use a micro-fiber cloth and neutral soap to clean the aircraft.
- Avoid water bathing of metallic parts.
- Rinse with a damp and clean micro-fiber cloth.
- Dry excess moisture using a deerskin, natural or synthetic chamois.
- The cockpit can be cleaned with a dry micro-fiber cloth and a vacuum cleaner.

CAUTION: to avoid corrosion problems make sure that the metallic parts are not left damp. The use of a water dispersant spray and or approved lubricant is advised.

7.4 AIRCRAFT SERVICING

Servicing fuel

- Make sure the plane is set on the parking brake.
- Open the fuel cap.
- Pour in fuel as per specification.
- Check that the amount poured equates to the reading from the dipstick.
- Close the cap and make sure the fuel cap vent is directed to the front.
- Make sure no spilled fuel is left on the plane. Remove if necessary.

Servicing Oil

- Remove top cowling.
- Make sure the ignition and both magnetos are off.
- Turn propeller 5-6 times in the normal direction for flight.
- Open the oil tank cap and check the level of the oil by the dipstick.
- Oil should read within marked limits.
- Add oil if necessary.
- Close the cap.

Servicing Coolant (Rotax engine)

- Remove the top cowling.
- Open the cap of the coolant tank and add coolant to fill up the tank.
- Make sure the ignition and both magnetos are off.
- Turn propeller 5-6 times in the normal direction for flight
- Make sure that no air is inside the cooling system.
- Close the coolant tank cap and if necessary add coolant to the expansion tank.

NOTES:

SECTION 8

Aircraft Check Lists

Title	Page
8.1 Aircraft on board check lists	**54**
8.2 Aircraft ground pre flight check list	**58**

(NOTE: these pages can be cut out and laminated)

Texan Top Class Rotax 912 ULS – Check list (page 1)

PRE-FLIGHT CHECK - completed

Seats	- adjusted
Safety belts	- adjusted and fastened
Canopy	- closed and locked
Parking brake	- ON
Flight controls	- full and free movement
Fuel faucets	- RH open, LH closed
Trim	- Neutral

ENGINE START

Choke lever:	engine cold	- ON (all rearward)
	Engine warm	- OFF (all forward)
Electric fuel pump		- ON for 10 sec. then OFF
Throttle		- At minimum + 1 cm
Master switch		- ON
Generator warning lamp		- ON
Ignition magnets key		- each magnets ON

Ensure the propeller area is clear of any person or object "CLEAR PROP"

Start procedure	- Max 20 sec., pause one minute before retrying
Throttle	- 2500 RPM
Oil pressure	- Green arc in 5 sec.
Generator warning lamp	- OFF
Electric fuel pump	- OFF

BEFORE TAXIING

Electrical system	- ON and checked
Navigation instruments	- checked
Flaps	- Position for takeoff (15°)
Parking brake	- OFF

Texan Top Class Rotax 912 ULS – Check list (page 2)

TAXIING

Brakes	- check both operate equally
Flight control	- free full movement, stick and pedals
Flight instruments	- Check magnetic compass, gyro's and set altimeter QNH
Throttle	- As necessary

ENGINE CHECK

Parking brake	- ON
Fuel tank faucets	- RH Open, LH Closed
Oil Temp & pressure	- Within limits, in green arc
Trim	- Neutral
Flight controls	- Free and full movement
Check magnetos	- 3000 RPM maximum decrease. 300 RPM for each magneto
Throttle	- All forward, check minimum.
5000 RPM +/- 150 for 5 sec	
Check minimum RPM	- 1400 RPM

BEFORE TAKE-OFF

Flight controls	- Free and full movement
Trim	- Neutral
Electric fuel pump	- ON
Flaps	- Set for take-off (15º)
Fuel tank faucets	- RH Open, LH Closed
Engine instruments	- Within limits
Flight instruments	- Check and regulate
Safety belts	- adjusted and fastened
Canopy	- check 4 locks are engaged & locked
Canopy open warning lamp	- OFF
Parking brake	- OFF

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Pilot Operating Handbook
FLY SYNTHESIS TEXAN
TOP CLASS 580 ISR
(for Rotax 912 ULS versions)

Identification: POH_TC_580 Rev.3
Page: 54 of 57
Date: 25/021/11
Issued: C. Cosatto
Verified: C. Cosatto
Approved: C. Cosatto

Revision Description:
Converted speeds from knots in mph

TAKE-OFF

Aircraft	- Align with runway
Throttle lever	- Full open smoothly
RPM	- 5500rpm min (if adjustable pitch inst.)
At (40KTS)	- Rotation

For a take off from short runway with an obstable of 15 m, use flap with 20°.

- *Rotation*	- *46 mph*
- *Climb speed*	- *(Vx) 55 mph*
Flaps	- Up
Trim	- As necessary
Speed	- Vx or Vy
Throttle	- As necessary
Electric fuel pump	- Off

CLIMB

Engine RPM	- 5000 RPM.
Engine instruments	- Within limits
Trim	- As necessary

CRUISE

Throttle	- As necessary
Engine RPM	- Max continuous power 5500 RPM
Engine instruments	- Within limits

Warning: Check frequently engine instruments, do not exceed limits.

The speeds are only indicative

Speed 140 km/h (90 mph)	- 4000 rpm
Speed 180 km/h (112 mph)	- 4800 rpm
Speed 190 km/h (117 mph)	- 5000 rpm
Speed 230 km/h (142 mph)	- 5500 rpm

DESCENDING

Altimeter	- Setting
Carburetor heat	- As necessary
Throttle	- As necessary
Trim	- As necessary
Engine instruments	- Within limits

LANDING

Speed	- 105 km/h (65 mph)
Flap	- As necessary
Trim	- As necessary
Throttle	- As necessary
Electric fuel pump	- ON
Parking brake check	- Check
Final Approach speed	- 90 km/h (55 mph)
Touch down speed	- 75 km/ h (46 mph)

TOUCH & GO

Throttle	- All forward Max power
Trim	- As necessary
Flap	- 15°
Speed	- Vx o Vy

If you touch the ground repeat take off procedure.

AFTER LANDING

Throttle	- Idle
Flaps	- UP
Electric fuel pump	- OFF
Brakes	- Check functionality with "warm brakes"

ENGINE SHUTDOWN

Throttle	- Idle
Parking brakes	- ON
Electrical equipment, radio etc	- OFF
Magnetos	- OFF (one by one)
Master switch	- OFF
Fuel tank faucets	- closed

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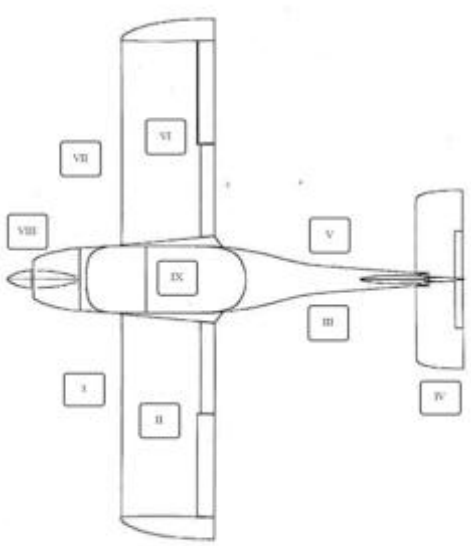
Converted speeds from knots in mph

8.2 AIRCRAFT ON GROUND CHECK LIST

FLYSYNTHESIS **TEXAN TOP CLASS** **PRE-FLIGHT CHECK LIST** Page 1

Remove all the protections

1. pitot-cover,
2. wheels stops,
3. mobile surfaces stops,
4. canopy covering,
5. propeller protection,
6. fuel draining procedure.



Left main landing gear (I)

Leg	no distortion, bolts locked, no sign of cracks on the welding
Brake assembly	condition and tightness
Tire	general good condition, inflated correctly
Wheel fairing	good conditions and free space between the wheel and fairing.

Left wing (II)

Wing surface	absence of buckling, absence of delamination
Karman wing root	absence of delamination, fixed correctly
Leading edge	absence of delamination
Wing tip	no defects, fixed correctly
Trailing edge	absence of delamination, no signs of cracks
Flap & aileron	absence of delamination, no signs of cracks, free movement, no excessive play on hinges, fixed correctly, balancing mass fixed correctly, no signs of lateral movement.

Fuselage left side (III)

Fuselage surface	absence of buckling, absence of delamination, inspection holes closed

Empennage (IV)

Vertical fin	absence of buckling, absence of delamination
Rudder	absence of delamination, hinges fixed correctly

Lower the tail of the aircraft to lift the nose wheel, check the free movement of the rudder, check for possible hinge problem.

Bowden cables	fixed correctly.
Stabilator	free movement during all travel range, absence of buckling, absence of delamination
Stabilator hinge	absence of delamination, fixed correctly, no play
Balancing mass	fixed, no play
Hinge pins	fixed correctly
Trim tab	free movement, absence of defects, and no play.

Fuselage right side (V)

Fuselage surface	absence of buckling, absence of delamination, inspection holes closed

Right wing (VI)

Wing surface	absence of buckling absence of delamination
Karman wing root	absence of delamination, fixed correctly
Leading edge	absence of delamination,
Wing tip	no defects, fixed correctly
Trailing edge	absence of delamination, no signs of cracks

Flap & aileron	absence of delamination, no signs of cracks, free movement, no excessive play on hinges, fixed correctly, balancing mass fixed correctly, no signs of lateral movement.
Pitot tube	no defects, fixed correctly
Right main landing gear (VII)	
Leg	no distortion, bolts locked, no sign of cracks on the welding
Brake assembly	condition and tightness
Tire	general good condition, inflated correctly
Wheel fairing	good conditions and free space between the wheel and fairing.
Nose wheel (VIII)	
Fixing axle bolts	check correct tightness
Wheel fairing	good conditions and free space between the wheel and fairing.
Tire	general good condition, inflated correctly
Damper	no signs of cracks or distortion, free movement
Nose wheel support structure	no signs of cracks or distortion.
Propeller (VIII)	
Hub & blades	no signs of cracks & clean.
Spinner	no signs of cracks, fixed correctly
Engine (VIII)	
Upper cowling	remove
Oil tank	check level
Coolant tank	check level
Radiator and air inlet	no signs of cracks, free from obstructions
Engine	clean, no oil or coolant leakage
Muffler & silencer manifold	no signs of cracks, muffler hooked.
Oil and refrigerant tube system	correct functionality, no leakage
Ignition & electric plant	correct functionality.
Throttle & choke cables	free movement
Pitch governor oil pipe (if installed)	no air bubbles present inside oil
Upper cowling	reinstall and check tightness.
Check inside cabin (IX)	
Instruments panel	fixed correctly, all placards
Master switch ON	all instruments ON
Master switch OFF	all instruments OFF
Control stick	free movement, fixed correctly in its support
Rudder pedals .	no distortion, no signs of cracks, correct functionality, fixed correctly in its support, correct functionality of centering system.
Throttle & choke levers	free movement, fixed correctly in there support
Brake lever and parking brake	remove parking brake lock, check lever functionality. Insert parking brake.
Trim lever	check correct functionality
Safety belts	check correct functionality
Seats,	fixed correctly.
Canopy	clean, no signs of cracks, correct functionality of locking system.
Windshield	clean, fixed correctly on fuselage
Luggage	secured.
Weight & balance	calculated.